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In re Patent Application of

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David C. LOVETRO et al

Confirmation No. 9121

Application No. 10/301,760

Group Art Unit: 1754

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Examiner: Wayne A. Langel

For: CHEMICAL COMPOSITION AND  
METHOD**DECLARATION UNDER 37 C.F.R. §1.132**

I, David Bonislawski, hereby declare that:

- 1) I am a co-inventor of the above identified patent application;
- 2) I have reviewed the Final Office action dated March 20, 2007 and the references cited therein, namely, U.S. Patent No. 6,686,324 (Ramirez) and U.S. Patent No. 4,378,270 (Brasch);
- 3) To further distinguish the claimed invention from the above named Ramirez and Brasch references, the following experiments were performed by me or under my direction and control:
  - A comparison of five solutions of hydrogen peroxide was made, including a control. The data for the control comes from the C of A files (Certificate of Analysis) for Eka Chemicals' standard commercial grades of 35% hydrogen peroxide. This is a pooled data set collected over many years of commercial operation of Eka Chemicals' manufacturing plant and represents well-known behavior for this type of product.
  - Four aqueous solutions of hydrogen peroxide were prepared from one of Eka Chemicals' standard commercial grades of hydrogen peroxide. To each of the 35% H<sub>2</sub>O<sub>2</sub> solutions was added one of four stabilizers according to the following table. In the table, acronyms are used as follows:
    - DTPMP = Diethylenetriamine-penta-methylene phosphonic acid
    - ATMP = Amino tri(methylene phosphonic acid)
    - PBTC = Phosphono butane tricarboxylic acid
    - PBTCA = ibid.
    - HEDP = 1-Hydroxyethylidene (1, 1-diphosphonic acid)

Patent  
Serial No. 10/301,760

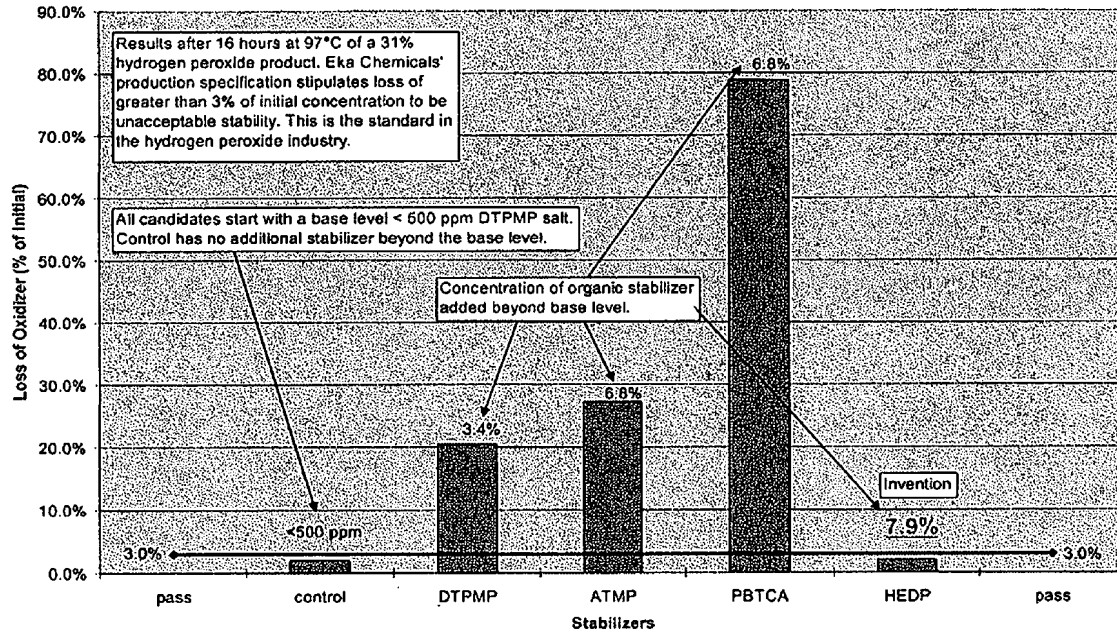
Test 48: Peroxy-Blend® stabilizer comparison						
5/24/2005						
sample	date	Temp.	ml of sample	ml thiosulfate	[H <sub>2</sub> O <sub>2</sub> ] (gms/liter)	sample description
control	various	16 hrs @ 97°C	---	permanganate	---	standard grades 35.0 to 35.7% by weight
48-1	5/20/2005	ambient	0.1	20.545	349.265	7.9% of HEDP + 35% HP
	5/23/2005	ambient	0.1	20.27	344.59	
A	5/24/2005	16 hrs @ 97°C	0.1	20.03	340.51	
B	5/24/2005	16 hrs @ 97°C	0.1	19.85	337.45	
48-2	5/20/2005	ambient	0.1	20.35	345.95	3.4% DTPMP + 35% HP
	5/23/2005	ambient	0.1	19.905	338.385	
C	5/24/2005	16 hrs @ 97°C	0.1	15.175	257.975	
D	5/24/2005	16 hrs @ 97°C	0.1	15.815	268.855	
48-3	5/20/2005	ambient	0.1	20.16	342.72	6.8% ATMP + 35% HP
	5/23/2005	ambient	0.1	21.57	366.69	
E	5/24/2005	16 hrs @ 97°C	0.1	15.585	264.945	
F	5/24/2005	16 hrs @ 97°C	0.1	15.7	266.9	
48-4	5/20/2005	ambient	0.1	20	340	6.8% PBTC + 35% HP
	5/23/2005	ambient	0.1	19.825	337.025	
G	5/24/2005	16 hrs @ 97°C	0.1	3.8	64.6	
H	5/24/2005	16 hrs @ 97°C	0.1	4.19	71.23	

NOTE: LESS THAN 3% LOSS TO PASS

- The stabilized solutions were stored for 16 hours at 97°C and then analyzed for percentage loss of hydrogen peroxide. This is a standard accelerated testing protocol at elevated temperature done routinely by Eka Chemicals in both plant Q.C. lab on all commercial grades of hydrogen peroxide and in the business development lab on new products. The following bar graph graphically illustrates the results.

Patent  
Serial No. 10/301,760

Test 48 - Oxidizer Loss vs Stabilizer Type



4) As can be seen from the graph, with the exception of HEDP, higher levels of organic stabilizer de-stabilize hydrogen peroxide as the sequestering agent takes on more of the role of oxidizable contaminant. The nitrogen-containing stabilizers (DTPMP, ATMP and PBTC) all failed this test.

5) The results for DTPMP, ATMP and PBTC confirm the generally held belief in the art that high levels of oxidizable organic stabilizers in concentrated hydrogen peroxide solutions have the contrary effect of de-stabilizing rather than stabilizing the peroxide.

6) Only the hydrogen peroxide solution stabilized with HEDP provided acceptable stabilization after 16 hours compared to the control. This result was quite unexpected.

7) In my opinion, the above results demonstrate that HEDP is unique among diphosphonic acid stabilizers in providing stability at high concentrations.

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Patent  
Serial No. 10/301,760

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date:

By David Bonislowski  
David Bonislowski